

Preliminary Amendment

Applicant: Dennis J. Schloeman et al.

Serial No.: Unknown (Parent Serial No. 10/134,124)

Filed: Herewith (Parent Filing Date April 29, 2002)

Docket No.: 10014406-3

Title: FIRE PULSES IN A FLUID EJECTION DEVICE

IN THE CLAIMS

Please amend claims 1, 8, 9, 14, 15, and 20.

1. (Currently Amended) A fluid ejection device comprising:

an internal power supply path configured to provide a substantially constant voltage;
nozzles;

firing resistors, wherein each firing resistor corresponds to a corresponding tone of
the nozzles, wherein each firing resistor and corresponding nozzle are located in one zone of
a plurality of zones on the fluid ejection device, and wherein each zone has at least one firing
resistor and corresponding nozzle; and

addressable select logic responsive to a select address to couple multiple fire pulses to
the firing resistors in the zones so that selected firing resistors in the same zone are coupled to
a same fire pulse, wherein the same fire pulse controls an initiation and a duration in which
the selected firing resistors in the same zone are coupled to the internal power supply path to
thereby control fluid ejection from the nozzles in the same zone corresponding to the selected
firing resistors.

2. (Original) The fluid ejection device of claim 1, wherein the select logic couples each
fire pulse to a unique one or more zones for each value of the select address.

3. (Original) The fluid ejection device of claim 2 wherein the fluid ejection device is
coupled to an electronic controller, wherein the select logic includes one or more
multiplexers, and wherein the electronic controller provides the select address and the fire
pulses.

4. (Original) The fluid ejection device of claim 1, wherein the zones are organized on
the fluid ejection device into rows and columns, wherein if a value of the select address is a
first select address, the select logic couples each fire pulse to each row so that each firing
resistor in each zone in the row is coupled to the same fire pulse, and wherein if the value of
the select address is a second select address, the select logic couples each fire pulse to each

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column so that each firing resistor in each zone in the column is coupled to the same fire pulse.

5. (Original) The fluid ejection device of claim 4 wherein the fluid ejection device is coupled to an electronic controller, wherein the select logic includes one or more multiplexers, and wherein the electronic controller provides the select address and the fire pulses.

6. (Original) The fluid ejection device of claim 1, further comprising:
feed slots, wherein each zone is defined to include only the nozzles in fluid communication with at least one feed slot, and wherein each feed slot has at least one zone.

7. (Original) The fluid ejection device of claim 6, wherein the nozzles in fluid communication with the at least one feed slot are disposed on the fluid ejection device to be adjacent to the at least one feed slot on either a first side or a second side of the at least one feed slot, wherein each zone is defined to include only the nozzles positioned on the first side, or only the nozzles positioned on the second side, and wherein either the first side or the second side has at least one zone.

8. (Currently Amended) The fluid ejection device of claim 1, further comprising:
at least two parallel and adjacent feed slots, wherein the nozzles are disposed on the fluid ejection device to be adjacent to the feed slots ~~on either a first side or a second side of the feed slots~~, wherein each zone is defined to include only the nozzles in fluid communication with the adjacent feed slots.

9. (Currently Amended) A fluid ejection assembly, comprising:
at least one fluid ejection device, each fluid ejection device including:
an internal power supply path configured to provide a substantially constant
voltage;
nozzles;

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firing resistors, wherein each firing resistor corresponds to a corresponding
one of the nozzles, wherein each firing resistor and corresponding nozzle are
located in one zone of a plurality of zones on the fluid ejection device, wherein each
zone has at least one firing resistor and corresponding nozzle; and

addressable select logic responsive to a select address to couple multiple fire
pulses to the firing resistors in the zones so that selected firing resistors in the same
zone are coupled to a same fire pulse, wherein the same fire pulse controls an
initiation and a duration in which the selected firing resistors in the same zone are
coupled to the internal power supply path to thereby control fluid ejection from the
nozzles in the same zone corresponding to the selected firing resistors.

10. (Original) The fluid ejection assembly of claim 9, wherein the select logic couples
each fire pulse to a unique one or more zones for each value of the select address.

11. (Original) The fluid ejection assembly of claim 9, wherein the zones are organized on
the fluid ejection device into rows and columns, wherein if a value of the select address is a
first select address, the select logic couples each fire pulse to each row so that each firing
resistor in each zone in the row is coupled to the same fire pulse, and wherein if the value of
the select address is a second select address, the select logic couples each fire pulse to each
column so that each firing resistor in each zone in the column is coupled to the same fire
pulse.

12. (Original) The fluid ejection assembly of claim 9, further comprising:
fluid feed slots, wherein each zone is defined to include only the nozzles in fluid
communication with at least one fluid feed slot, and wherein each fluid feed slot has at least
one zone.

13. (Original) The fluid ejection assembly of claim 12, wherein the nozzles in fluid
communication with the at least one fluid feed slot are disposed on the fluid ejection device
to be adjacent to the at least one fluid feed slot on either a first side or a second side of the at

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least one fluid feed slot, wherein each zone is defined to include only the nozzles positioned on

the first side, or only the nozzles positioned on the second side, and wherein either the first side or the second side has at least one zone.

14. (Currently Amended) The fluid ejection assembly of claim 9, further comprising:

at least two parallel and adjacent fluid feed slots, wherein the nozzles are disposed on the fluid ejection device to be adjacent to the fluid feed slots ~~on either a first side or a second side of the fluid feed slots~~, wherein each zone is defined to include only the nozzles in fluid communication with the adjacent fluid feed slots.

15. (Currently Amended) A method of firing a fluid ejection device, the method comprising:

providing a substantially constant voltage on an internal power supply path in the fluid ejection device;

providing a select address; and

coupling, based on the select address, multiple fire pulses to firing resistors located in zones so that selected firing resistors in the same zone are coupled to a same fire pulse, wherein each firing resistor corresponds to one of a plurality of nozzles, wherein each firing resistor and a corresponding nozzle are located in one of the zones, and wherein each zone has at least one firing resistor and corresponding nozzle; and

controlling, with the same fire pulse, an initiation and a duration in which the selected firing resistors in the same zone are coupled to the internal substantially constant voltage to thereby control fluid ejection from the nozzles in the same zone corresponding to the selected firing resistors.

16. (Original) The method of claim 15 further comprising:

coupling each fire pulse to a unique one or more zones for each value of the select address.

17. (Original) The method of claim 15 further comprising:

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organizing the zones on the fluid ejection device into rows and columns;

coupling each fire pulse to each row so that each firing resistor in each zone in the row is coupled to the same fire pulse if the value of the select address is a first select address; and

coupling each fire pulse to each column so that each firing resistor in each zone in the column is coupled to the same fire pulse if the value of the select address is a second select address.

18. (Original) The method of claim 15 further comprising:

providing fluid feed slots wherein each zone for each fluid feed slot is defined to include only the nozzles in fluid communication with at least one fluid feed slot, wherein each fluid feed slot has at least one zone.

19. (Original) The method of claim 18 further comprising:

defining each zone to include only the nozzles positioned to be adjacent to the at least one fluid feed slot on either a first side or a second side, wherein either the first side or the second side has at least one zone.

20. (Currently Amended) The method of claim 15 further comprising:

providing at least two parallel fluid feed slots, wherein the nozzles are disposed on the fluid ejection device to be adjacent to the fluid feed slots ~~on either a first side or a second side of the fluid feed slots~~, wherein each zone is defined to include only the nozzles in fluid communication with the adjacent fluid feed slots.